

Agenda of the Sugar Beet CGC Meeting

(in conjunction with the ASSBT Meeting in Clearwater Beach, Florida Feb. 23 - 26, 2015)

Monday, February 23 – 8:00 to 12:00 noon in the Coral Room of the Hilton Resort Hotel

1. Membership Elections
 - Members whose seat is up for election
 - J. Mitchell McGrath
 - Syngenta Seeds, Inc. Representative
 - Larry G. Campbell
 - Robert M. Harveson,
 - Lee Panella
 - SESVanderHave NV/SA Representative
2. Curator's Report – Barbara Hellier
3. Collection Trips – Barbara Hellier
 - Discussion of planned Southern California collection trip – Barbara Hellier
 - Potential collection of sugarbeet CWR in Azerbaijan – Lee Panella
4. Project with Irwin Goldman on red beet accessions in the collection – Barbara Hellier
5. Update concerning the CGC Chairs Teleconference – Mitch McGrath
 - There is a full PowerPoint available at http://www.ars-grin.gov/npgs/cgc_reports/cgc2014chairs.pdf
6. Reminder to send seed from new releases to Pullman
7. Request for help in increasing sugarbeet germplasm in the collection
8. Should we develop a “core” of old ARS releases, and other improved germplasm in the NPGS?
 - With the project by Barbara Hellier and Irwin Goldman looking through the table beet accessions in our collection, there is an opportunity to develop core collections of the other groups.
 - Currently there is a core of sea beet accessions (*Beta vulgaris* subspecies *maritima*) and land race accessions of other cultivated beets.
 - However, there has been no attempt to organize the sugar beet releases and old open pollinated varieties, the fodder beets, or the Swiss chard in the collection.
 - Lee Panella, Mitch McGrath, Imad Eujayl, and Barbara Hellier volunteered to look into this at the last meeting.
9. Status of Germplasm in the United States
10. New Business

Minutes of the Sugar Beet CGC Meeting

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Attending the Meeting the following members; Bob Harveson, Mohamed Khan, Mitch McGrath, Klaas van der Woude, Imad Eujayl, Anna Murphy, Margaret Rekoske, Kelley Richardson, and Lee Panella; Ex officio members: Barbara Hellier, Jinguo Hu, and Gail Wisler; Observers: Thomas Kraft, Mark Boetel, Carl Strausbaugh, and Bruno Desprez.

1. Membership Elections

- Members whose seat was up for election
 - J. Mitchell McGrath (ARS) was re-elected
 - Anna Murphy (Syngenta Seeds, Inc.) was elected
 - Larry G. Campbell stepped down and Melvin Bolton (ARS) was elected
 - Robert M. Harveson (U of NE) was re-elected
 - Lee Panella (ARS) was elected and remains chairperson
 - Jan Sels (SESVanderHave NV/SA) was elected

2. Curator's Report – Barbara Hellier, February 23, 2015

Status Report on the *Beta* Collection at the Western Regional Plant Introduction Station (WRPIS) to the Sugar beet Crop Germplasm Committee (slides in [Appendix 1](#))

The *Beta* collection at the Western Regional Plant Introduction Station in Pullman, WA currently has 2,713 accessions with 1,684 accessions (62.1%) available and 2013(74.2 %) backed-up at the National Center for Genetic Resources Preservation (NCGRP), Fort Collins, CO. Table 1 contains a breakdown of the collection by species.

Table 1. Total number of accessions, number backed-up and number available per species in the NPGS *Beta* collection (includes the genus *Patellifolia*, formerly classified as *Beta*).

Taxon	Total Accessions	Accessions Backed-up	Accessions Available
<i>Beta corolliflora</i>	4	3	0
<i>Beta lomatogona</i>	29	4	2
<i>Beta macrocarpa</i>	55	12	8
<i>Beta macrorhiza</i>	19	2	1
<i>Beta nana</i>	21	0	
<i>Beta patula</i>	3	3	1
<i>Beta</i> sp.	16	5	3
<i>Beta trigyna</i>	48	5	7
<i>Beta vulgaris</i> ssp. <i>maritima</i>	627	406	411
<i>Beta vulgaris</i> ssp. <i>vulgaris</i>	1815	1550	1230
<i>Beta vulgaris</i> ssp. <i>vulgaris</i> (NCGRP)	5 CSR/PVPO		
<i>Beta x intermedia</i>	8	1	1
<i>Patellifolia patellaris</i>	45	14	13
<i>Patellifolia procumbens</i>	13	5	5
<i>Patellifolia webbiana</i>	8	2	1
<i>Patellifolia</i> hybrid*	2	1	1

*One accessions *P. patellaris x procumbens* and one *P. procumbens x webbiana*

From January 1, 2013 to December 31, 2014, we received 329 requests (an increase of 21 from the previous reporting period) from 292 requestors. A total of 1118 accessions and 2207 seed packets (a decrease of 473 from the previous reporting period) were distributed. In the same time period, we acquired 6 new accessions of table beet collected in Georgia. In 2013 and 2014 thirty-four accessions were sent to NCGRP for long-term back-up and 29 to the Svalbard Global Seed Vault.

Regeneration and maintenance activities:

The majority of our increases are done in the greenhouse. We are using all available, suitable spaces in the WRPIS and Washington State University greenhouse systems, a total of 13-19 rooms. During the reporting period we increased 46 accessions: 10 accession of *Patellifolia*, 31 accessions of *B. maritima*, 3 accessions of *B. vulgaris* and one accession of *B. macrocarpa*. We have been working on the new Morocco collections. All the 2010 material, of both *B. maritima* and *P. patellaris*, has been increased or is currently in the greenhouse and we have started working with the 2012 collection. Our outside increase locations produced mixed results. In 2013 all but one location produced good quantity and quality seed. In 2014, the plots were damaged by hail and deer or a majority of the plants did not bolt.

In 2013 and 2014 we had help increasing accessions from Beta Seed, SESVanderHave and Dr. Kelley Richardson (ARS) in Salinas, CA. They increased 36 accessions. We greatly appreciate their help.

From January 1, 2013 to December 31, 2014 viability tests were done on 252 *Beta* accessions (35 at NCGRP and 216 at WRPIS). We are continuing to collect descriptor data on increased or regenerated accessions. Data collected is hypocotyl color, bolting tendency, cluster fasciation, flowering pattern, leaf hairiness, leaf width (min. and max.), leaf length (min. and max.), leaf pigment, petiole color, susceptibility to *Erysiphe* sp., and images of pre-bolt plants and roots. We also started tetrazolium tests on our *Patellifolia* collection. It's very hard to break dormancy on these species so to get a more accurate assessment of viability we are using TZ tests.

WRPIS changes and updates:

At the Pullman Plant Introduction station there were several personnel changes in 2013 and 2014: Stephanie Greene, forage curator moved to NCGRP; Paula Moore, seed storage technician, took a job with WSDA; Melissa Scholten, agronomy research technician, moved to Portland, OR; Landon Charlo, cool season food legume technician, returned to graduate school; and Wayne Olson, Pullman farm manager, retired. We have been able to fill the Pullman farm manager position and will be interviewing soon for the seed storage technician but all the others are still vacant.

We made changes to our seed storage facility in 2013 and 2014. The lights were upgraded to LED bulbs and ballasts and insulation was added to the ceiling. This was installed to help with condensation accumulation between the ceiling of the cold room and the roof of the building. Also, two new compressors for the cold room were purchased and installed outside the building

to decrease heat build-up in the basement. We also purchased 2 new home sized freezer units for additional -20°C storage.

GRIN GLOBAL is coming in 2015.

Future projects:

This year we are planning to evaluate the morphologic characteristics of the *Patellifolia* collection. An evaluation nursery of the available accessions of *Patellifolia* (~45) will be planted at our Central Ferry, WA farm. The challenge for this evaluation will be getting plants for the nursery. The following characteristics will be collected: leaf shape, leaf width and length, leaf color, leaf surface texture, growth habit, days to bolting, days to flowering, days to seed maturity, seed production per plant, root structure, petiole length and width, stem diameter, stem branching pattern, seed shape, and hypocotyl color. Tissue samples will also be collected for molecular characterization.

3. Collection Trips – Barbara Hellier

Discussion of planned Southern California collection trip – Barbara Hellier

Dr. Panella, Dr. Richardson, Andy Sanders, botanist at UC Riverside, and I received funding from the NPGS Plant Exchange Office to collect *Beta* species in the Imperial Valley and along the coast of southern California in 2014. We were granted a deferral to 2015 because of the severe drought in California. Irrigated areas in the Imperial Valley were recently collected for *Beta macrocarpa* and there is no need to recollect those areas. We are monitoring conditions for the feasibility of collecting this year. If southern California is still too dry this year we were given permission to pursue collecting in the California San Francisco Bay delta and other areas around the Bay. Discussions with growers in these areas are ongoing and the collection trip may be changed to these areas, if we see sufficient wild beets to justify the collection trip.

Potential collection of sugarbeet CWR in Azerbaijan – Lee Panella

The CGC chair and curator were contacted by the ARS National Germplasm Resources Unit in Beltsville, MD. This is the research group that works with scientists to develop plant exploration and collection trips. We were asked if we were interested in working with scientists in Azerbaijan to collect wild relatives of sugar beet that are native there. This would be in conjunction with a trip to collect a number of different species of interest with *Beta* being just one. We are excited that this trip might give us access to germplasm in that area, which is not at present in our *Beta* collection.

4. Project with Irwin Goldman on red beet accessions in GRIN – Barbara Hellier

Dr. Irwin Goldman, University of Wisconsin, and I completed an evaluation of 142 accessions from the table beet collection. Data was collected in 2013 at Madison, WI and Central Ferry, WA for leaf and root characteristics and images of plants and roots captured. The phenotype data are being entered into the computer and results will be entered into GRIN. This information will help provide us with the ability to put together a table beet core collection.

5. Update concerning the CGC Chairs Teleconference – Mitch McGrath

CGC Chair Best Practices

- ❖ Submit minutes after CGC meetings, or ensure secretary does.
- ❖ Ensure your membership rosters are up to date.
- ❖ Notify NGRL when Chair rotates to a new member.
- ❖ Notify NGRL as far in advance as possible of meeting dates.
- ❖ Spearhead the revision of Crop Vulnerability Statements
- ❖ Consider virtual technologies (such as this one) if having a difficult time arranging well attended in person meetings.
- ❖ Consider joint meetings with other CGCs based on natural alignments and/or meeting locations

CGC Resources

- ❖ NGRL can assist with teleconferences and virtual meetings

- ❖ CGC pages on GRIN help archive and display CGC information, provides continuity for chairs and members Meetings dates and locations
 - ❖ Membership rosters and email addresses
 - ❖ Meeting minutes
 - ❖ Descriptor lists and reports
 - ❖ Crop Vulnerability Statement template

- ❖ System-wide email lists for PGO, Curators, Primaries, CGC Chairs

There was a brief PowerPoint presentation of “**The National Plant Germplasm System: 2015 Status and Prospects**”.

This had been presented earlier in 2015 by Dr. Peter Bretting (USDA-ARS Office of National Programs) at the ARS Plant Germplasm Operations Committee (PGOC) committee meeting. Please see [Appendix 2](#).

There is a full PowerPoint available at http://www.ars-grin.gov/npgs/cgc_reports/cgc2014chairs.pdf

6. Reminder to send seed from new releases to Pullman

There was a reminder of all of the ARS researchers that develop new germplasm to remember to send seed to Pullman. Seed must be sent to the NCGRP for a PI number to be issued. If we at that time send 200 grams of seed to Barbara Hellier at Pullman, then she will not have to expend resources to do an increase from the NCGRP seed lot.

7. Request for help in increasing sugarbeet germplasm in the collection

I would like to express thanks to all of the seed companies who had representatives at the CGC Meeting. Once again they offered to help increase (5 – 10 accessions each year) seed of accessions that are biennial sugar beet types. This allows our curator to concentrate time and

resources on those accessions that are more difficult to regenerate and require greenhouse conditions.

8. Should we develop at “core” of old ARS releases, and other improved germplasm in the NPGS? (Further conversation from CGC Meeting 2013)

- Currently there is a core of sea beet accessions (*Beta vulgaris* subspecies *maritima*) and land race accessions of other cultivated beets.
- However, there has been no attempt to organize the sugar beet releases and old open pollinated varieties, the fodder beets, or the Swiss chard in the collection.
- With the project by Barbara Hellier and Irwin Goldman looking through the table beet accessions in our collection, there is an opportunity to develop core collections of this group and the other cultivated groups.
- Lee Panella, Mitch McGrath, Imad Eujayl, and Barbara Hellier volunteered to look into this and will do so in 2016.

A proposal on how to develop such a core was put forth by Mitch McGrath, and is outlined below.

Develop a “core” ARS germplasm collection

Germplasm enhancement remains a goal for the ARS sugar beet geneticists; an activity widely supported by commercial breeders and policy makers. Although traditional breeding is well defined: perform crosses, make selections, and release breeding lines to end users; other considerations of the process give us the opportunity to add value to the process by taking advantage of emerging molecular technologies.

One consideration in using enhanced germplasm releases in a commercial setting is whether the underlying genetic constitution of the ARS release is the same, or different, from materials present in the commercial sector. One might expect that the genetics for some salient traits trace back to one or a few ARS germplasm releases, with subsequent refinement and recombination of additional traits in ARS releases over time, while concomitantly, refinement and commercialization of these traits also has taken place in the private sector. Thus, inefficiencies such as this may be addressable by understanding the underlying genetic structure of appropriate ARS releases.

This activity would seek to identify a 'core' set of some number of ARS germplasm releases that best capture the trait diversity that may have been deployed in commercial hybrids. Ultimately, identifying the alleles widely deployed in growers' fields would promote introgression of novel genes and alleles into future ARS germplasm enhancement efforts, and thus prevent recycling existing genetic diversity in the development of ARS enhanced germplasm. This is particularly relevant for screening crop wild relatives and subsequent introgression of presumed novel genes and alleles into the cultivated germplasm pool, because the probability of incorporating a wild-derived allele already present in the cultivated germplasm could be high or low. Presuming the complete genetic architecture is largely unknown for most sugar beet traits, and assuming this information is important, the best source of knowledge to contextualize these traits currently

resides in the enhanced germplasm and commercial varieties themselves, and from the developers of that germplasm.

Recently, 1,053 USDA ARS germplasm releases have been tabulated (Panella et al. J Sugar Beet Research, in press). From these 1,053, a set of germplasm releases, whose genetic contributions are legendary, should be chosen. These legendary releases then would form the primary subset of the core, to which additional germplasm can be added to complete the core of germplasm resources that best represents the materials likely to be most useful for future marker development, as well as locus and gene identification, and other potential uses.

Presuming that the chosen 'legendary' releases encompass primarily biotic stress resistances, breeding traits, and abiotic stress resistances, which have been a primary effort in ARS germplasm enhancement, the next step is to prioritize a list of existing descriptors for which genetic information is desired. For each of these descriptors (e.g. Cercospora tolerance), a suite of 3-5 additional ARS germplasm releases is added to the list of 'legends'. This set of germplasm releases then becomes the 'core' set of ARS germplasm releases, for which further insight is to be acquired through sequence analyses.

It is presumed that genomic biology will be a key feature in accessing future germplasm and improving ARS germplasm releases. At a minimum, this core set of ARS germplasm releases will be explored for nucleotide sequence variants that may provide some context and clarity regarding the uniqueness of ARS germplasm, the similarities between germplasm that share high descriptor values for each trait in the core, and provide open, curated, sequence data for future developments. The value of this sequence data is directly proportional to the value of the germplasm resources in the core, thus care in developing the core set of germplasm is required.

9. Status of Sugar Beet Germplasm in the United States

This document is in need of an update and Lee Panella will have a draft of that revision to the committee prior to the next CGC meeting (Feb. 27, 2017 at the Hyatt Regency Greenville, in Greenville, SC).

10. New Business

Dr. Bruno Desprez gave an introduction to the French [AKER project](#)

Appendix 1 – Slides accompanying the curator’s report

Status report on the *Beta* collection
at the Western Regional Plant Introduction Station,
Pullman, WA to the Sugar Beet Crop Germplasm
Committee



Barbara Hellier curator,
February 23, 2015 Clearwater, FL

Status report on the *Beta* collection
at the Western Regional Plant Introduction Station,
Pullman, WA to the Sugar Beet Crop Germplasm
Committee



Barbara Hellier curator,
February 23, 2015 Clearwater, FL

Total number of accessions at the WRPIS is 95,885

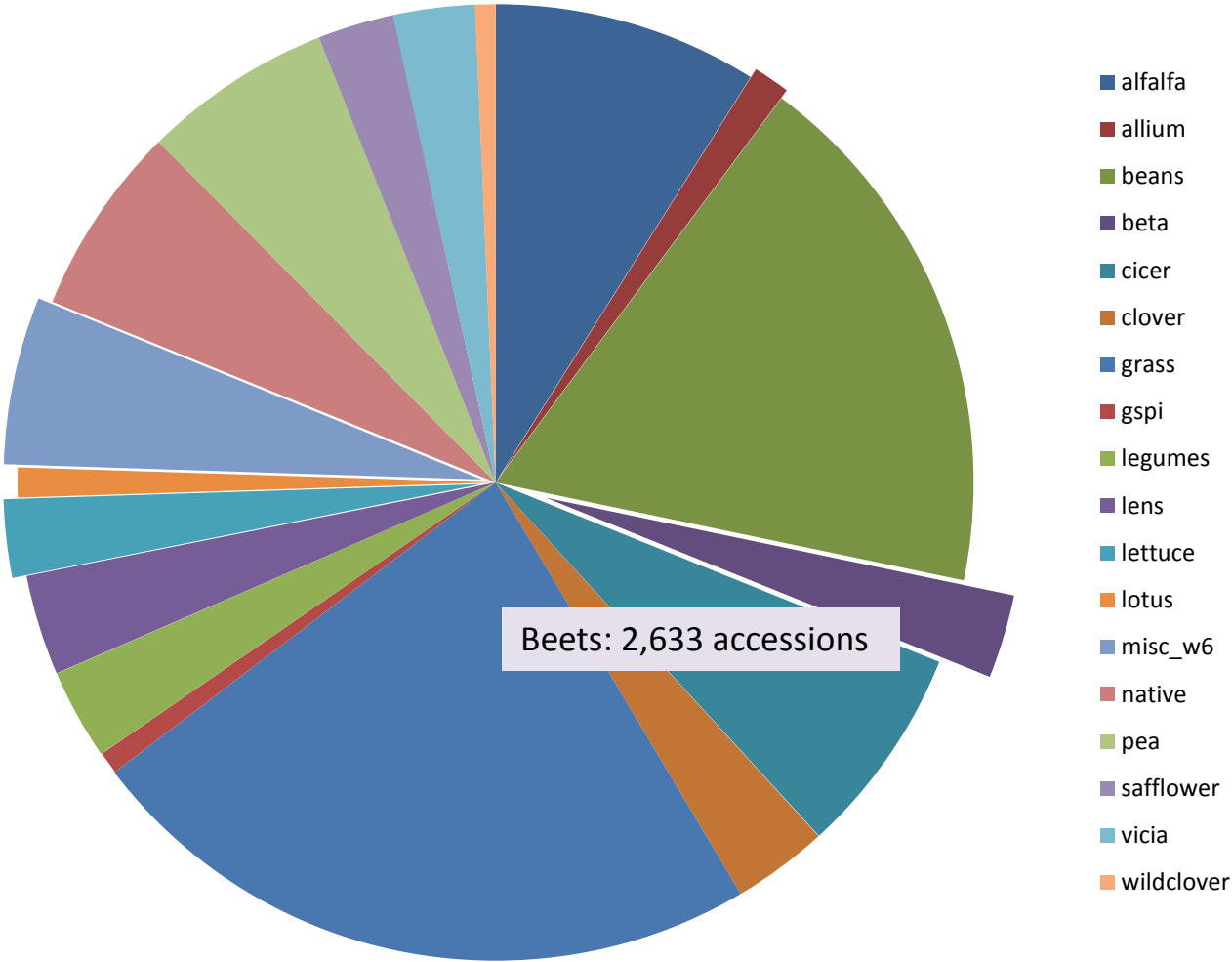


Table 1. Total number of accessions, number backed-up, and number available per species in the NPGS *Beta* collection (includes the genus *Patellifolia*, formerly classified as *Beta*.)

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<i>Beta x intermedia</i>	8	1	1
<i>Patellifolia patellaris</i>	45	14	13
<i>Patellifolia procumbens</i>	13	5	5
<i>Patellifolia webbiana</i>	8	2	1
<i>Patellifolia</i> hybrid*	2	1	1

Total accessions = 2,713

Total available = 1,684

Total backed-up = 2,013

* One accession *P. patellaris* X *procumbens* and one *P. procumbens* X *webbiana*



Orders, new inventories, and accessions sent to NCGRP and Svalbard.

From Jan. 1, 2013 to December 31, 2014:

Distributions

No. of orders = 329 (increase of 21 from previous reporting period)

No. of requestors = 292

No. of accessions distributed = 1,118

No. of seed packets distributed = 2,207 (an decrease of 473 from previous reporting period.)

New inventories

6 table beet from Georgia

Back-up to NCGRP and Svalbard

34 beet accessions sent to NCGRP and 29 to Svalbard

Regeneration and maintenance activities:

Regenerations:

Pullman increased 46 accessions:

31 B. maritima

10 Patellifolia patellaris

Cooperators increased 36 accessions

20 B. macrocarpa

16 B. vulgaris ssp vulgaris

Germination tests:

35 accessions tested by NCGRP

216 accessions tested in Pullman




GRIN GLOBAL coming in 2015

The screenshot shows the GRIN-Global 1.9.4 website interface. At the top, there is a navigation bar with links for "Login" (for returning members) and "Register Now" (for new users). A shopping cart icon indicates "1 item in cart", and a "Contact Us" link is also present. The main heading is "GRIN-Global 1.9.4" with a yellow warning banner stating "Test only, orders created here will not be filled". Below the heading is a banner image featuring various agricultural products like mangoes, oranges, strawberries, sunflowers, and corn. A navigation menu includes "Accessions", "Descriptors", "Taxonomy", "View Cart", "Reports", "My Account", and "Help". A language selector is set to "English". A search bar is located below the menu, with a "Search" button and links for "Search Options" and "Advanced Search". The footer contains logos for the Global Crop Diversity Trust, Bioversity International, and the USDA, along with a "View disclaimer" link.



GRIN-Global 1.9.4 Test only, orders created here will not be filled



Search For:  [Search](#)
[Search Options](#) | [Advanced Search](#)

Accessions: Exclude unavailable With images With NCBI link With genomic data

[Accession Collecting Site Search Criteria](#)

Choose Criterion 1: accession identifier range ▼ [Clear Criterion](#)

Individual accession identifier or range of identifiers:
PI ▼ to

Choose Criterion 2: taxonomy genus name ▼ Equal To ▼ [Clear Criterion](#)

Choose Criterion 3: -- Select One -- ▼ - Select - ▼ [Clear Criterion](#)

[Add More Criteria](#) [Clear All Criteria](#)



[View disclaimer](#)

Accessions - GRIN-Global Web v 1.9.4.0 - Internet Explorer



GRIN-Global 1.9.4 Test only, orders created here will not be filled



Query Criteria:

Search String:
 'accession identifier range' between 'PI 590722' and 'PI 590750'
 'taxonomy genus name' equal to 'beta'

Search For:

[Search Options](#) | [Advanced Search](#)

Actions... ▾

Select: All, None, Inverse, Highlighted Options: Show items << < of 29 >> Export...

Group By:		Plant Name	Taxonomy	Origin	Material	Maintained By	Availability
<input type="checkbox"/>	Plant ID						
<input type="checkbox"/>	PI 590722	FC 703/4	Beta vulgaris subsp. vulgaris	United States, Colorado	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590723	C554	Beta vulgaris subsp. vulgaris	United States, California	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590724	FC 702/4(4X)	Beta vulgaris subsp. vulgaris	United States, Colorado	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590725	L34	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590726	L40	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590727	L50	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590728	F1003	Beta vulgaris subsp. vulgaris	United States, North Dakota	Seed	W6	Not Available
<input type="checkbox"/>	PI 590729	FC 711	Beta vulgaris subsp. vulgaris	United States, Colorado	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590730	MELANGE S	Beta vulgaris subsp. vulgaris	France	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590731	MELANGE T	Beta vulgaris subsp. vulgaris	France	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590732	MELANGE U	Beta vulgaris subsp. vulgaris	United States, California	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590733	CT8 (7827)	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590734	SLC125 (8506)	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590735	SLC126 (6573)	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590736	SLC127 (6576)	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590737	SLC130 (0506)	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590738	SLC131 (0206)	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590739	SLC132 (46121)	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590740	SLC133 (7406)	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590741	SLC 17	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590742	SLC 18	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590743	SLC 19	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Add to Cart
<input type="checkbox"/>	PI 590744	SLC 20	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590745	SLC 21	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available
<input type="checkbox"/>	PI 590746	SLC 22	Beta vulgaris subsp. vulgaris	United States, Utah	Seed	W6	Not Available

Accessions - GRIN-Global Web v 1.9.4.0 - Internet Explorer



GRIN-Global 1.9.4

Test only, orders created here will not be filled



[Accessions](#) ▶ [Descriptors](#) ▶ [Taxonomy](#) ▶ [View Cart](#) [Reports](#) [My Account](#) ▶ [Help](#) ▶

Choose language [English](#) ▼

PI 590724

Beta vulgaris L. subsp. vulgaris

Status: Available
Amt Distributed: 100 count
Type Distributed: Seed

 [Add to My Favorites](#)

 [Add to Order](#)

Donated from:	Colorado United States
Maintained by:	Western Regional PI Station
NPGS received:	01-Dec-1982
PI assigned:	1995
Inventory volume:	204
Backup location:	National Center for Genetic Resources Preservation
Life form:	Biennial
Pedigree:	
Improvement status:	Breeding material
Reproductive uniformity:	
Form received:	Seed

Accession names and identifiers

FC 702/4(4X)	
Type:	Developer identifier
IDBBNR 4436	
Type:	Institute identifier
Group:	IPGRI
Cooperator:	Bundesanstalt für Züchtungsforschung
NSL 162351	
Type:	Site identifier
Group:	NSSL
Comment:	National Seed Storage Laboratory (USA)
Cooperator:	USDA, ARS, NCGRP

Intellectual Property Rights

Crop Science Registration

Identifier: GP-56 Crop: SUGARBEET . Date Issued: 01 Nov 1979, [Current Status](#)

Reference: . 1979. .. Crop Sci. (Madison) 19(6):935 Comment: GP-56

Accession: PI 590724 - GRIN-Global Web v 1.9.4.0 - Internet Explorer

Narrative

Multigerm, pollen-fertile, autotetraploid (4x = 36), resistant to root rot caused by *Rhizoctonia solani*. Moderate resistance to leaf spot caused by *Cercospora beticola*. Mostly self sterile. Flowers after short induction (easy bolting), plus/minus 50% pink hypocotyl. For breeder use as a pollinator to produce triploid rhizoctonia resistant hybrids. Good combining ability for sucrose production.

Annotations

Action	Date	By	Old Name	New Name
NOM-CHANGE	27 Sep 1989		Beta altissima	Beta vulgaris subsp. vulgaris

Source History

- Accession was donated. 1982. United States
Donors:
 1. [Hecker, Richard, USDA, ARS](#)

Citations

- Reference: Panella, Leonard and L.E. Hanson. 2005. USDA-ARS sugar beet germplasm, evaluated for *Rhizoctonia* resistance. PI Dis Reporter B&C Tests Vol 21:FC012. Comment: [to read this article](#).
- Reference: Hanson, L.E. and L. Panella. 2002. *Rhizoctonia* root rot resistance of Beta PIs from USDA-ARS NPGS, 2002. Biol Cult Tests 18:F013. DOI: 10.1094/BC18. Comment: Biological and Cultural Tests for Control of Plant Diseases can be found at: [Click to get to the B&C Tests](#)

Pedigree

Observations

[Click link below to see detailed observation data:](#)
[Detailed Accession Observation Page](#)

Characterization and Evaluation Data:

Category	CYTOLOGIC	DISEASE	MORPHOLOGY	
Descriptor	Ploidy level	Rhizoctonia	100 Seed weight in grams	Lifeco
Value	4n - TETRAPLOID	3 - RESISTANT	1.149	BI - Biennial
Study/Environment	SUGARBEET.PLOIDY.1995.DONEY	SUGARBEET.RHIZOCTONIA.2002B.PANELLA	SUGARBEET.SEEDWGT.WRPIS	SUGARBEET.LIFEC

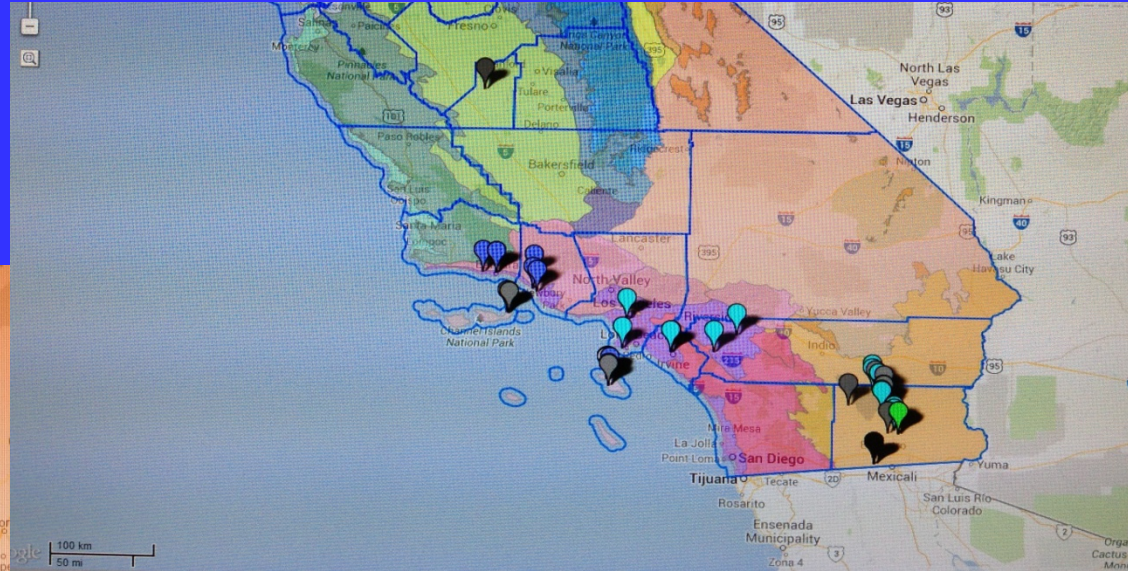
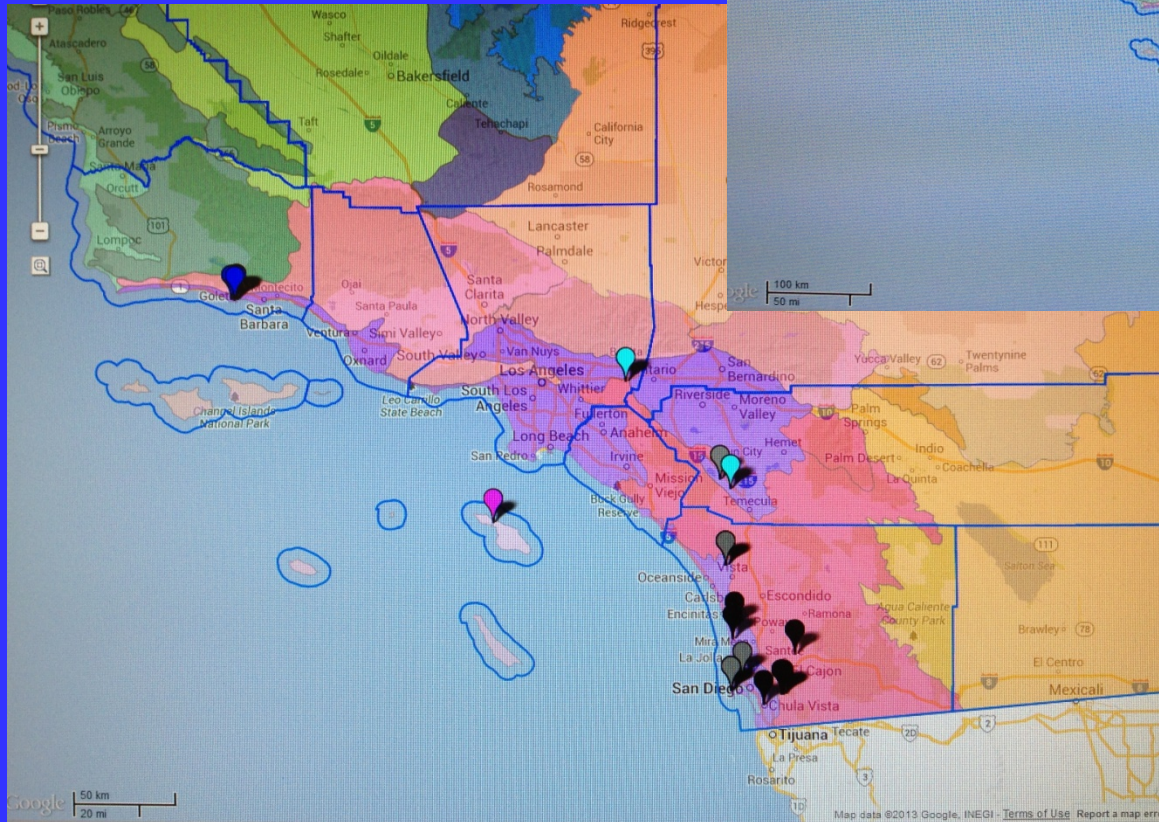


[View disclaimer](#)

**Accession: PI 590724 - GRIN-Global Web v
1.9.4.0 - Internet Explorer**



2015 collecting trip (tentative) for Beta species



Consortium of CA Herbarium
specimen record locations
for *B. macrocarpa* (map
created with Berkley
Mapper, Google maps.)
above and *B. maritima* , **left.**



2013-

THE YEAR OF

THE *BETT*

NPGS Table Beet collection Diversity



Root flesh color

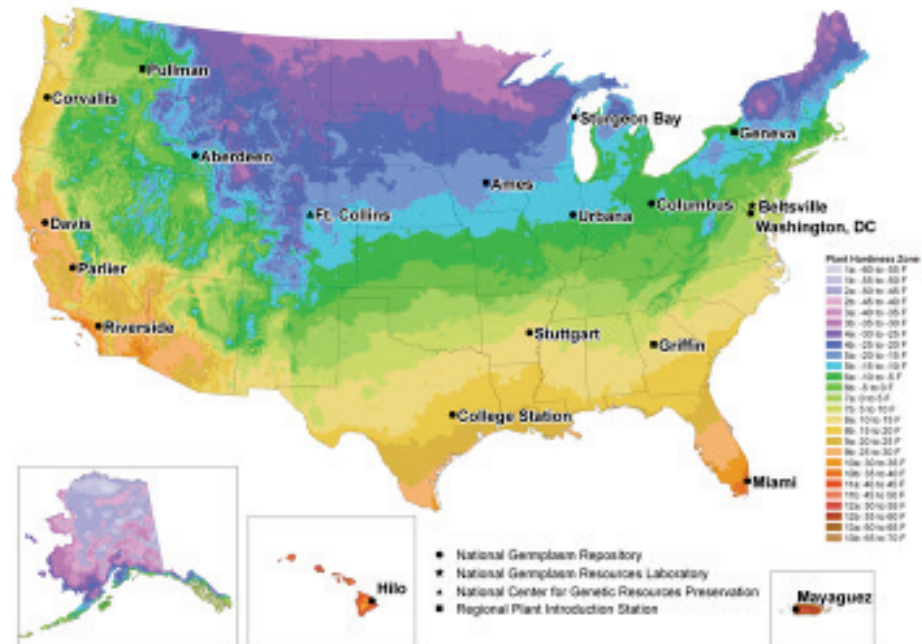


Root shape, leaf density and color



Appendix 2 – the National Plant Germplasm System: 2015 Status and Prospects

USDA National Plant Germplasm System (NPGS)

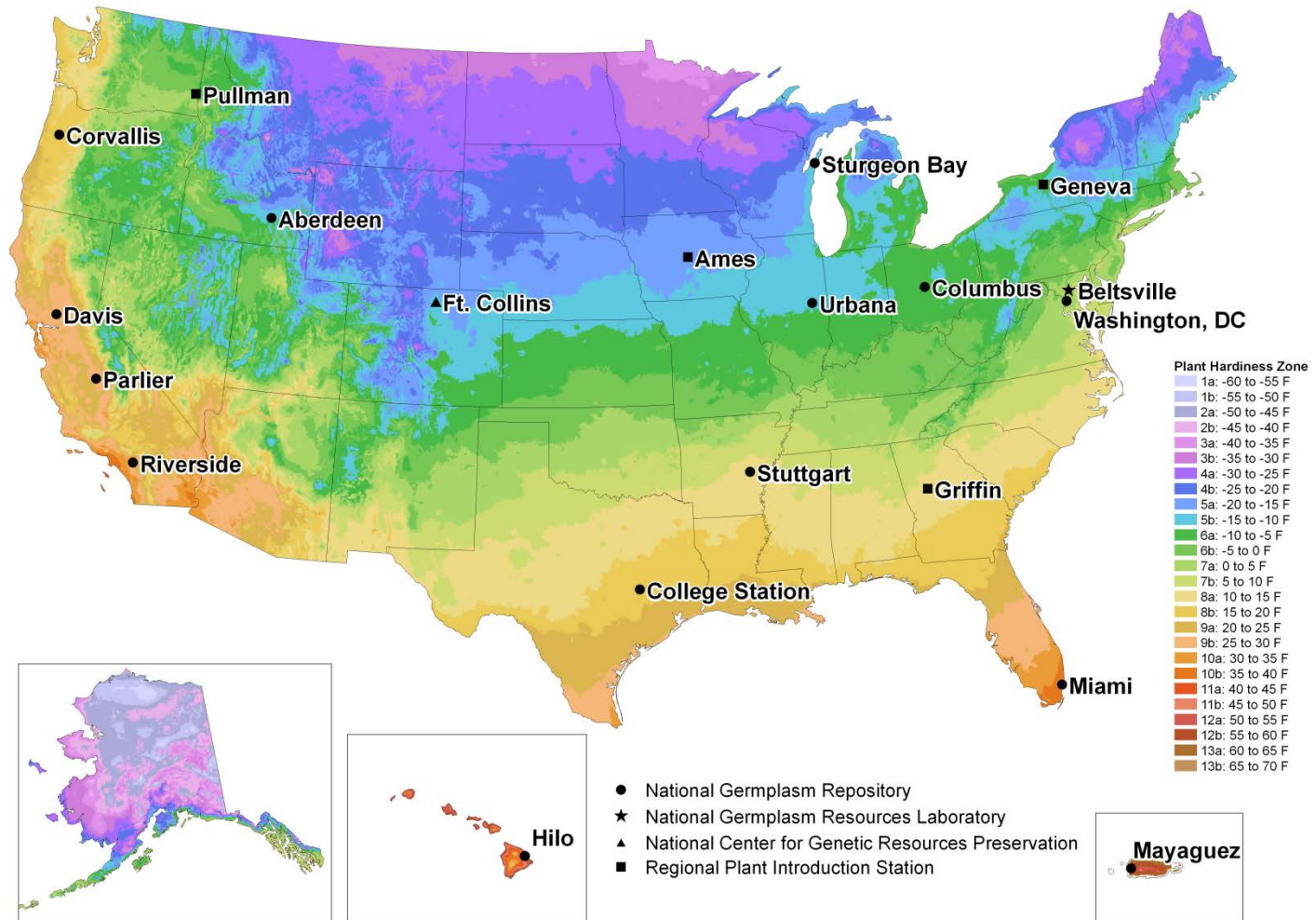


The National Plant Germplasm System: 2015 Status and Prospects

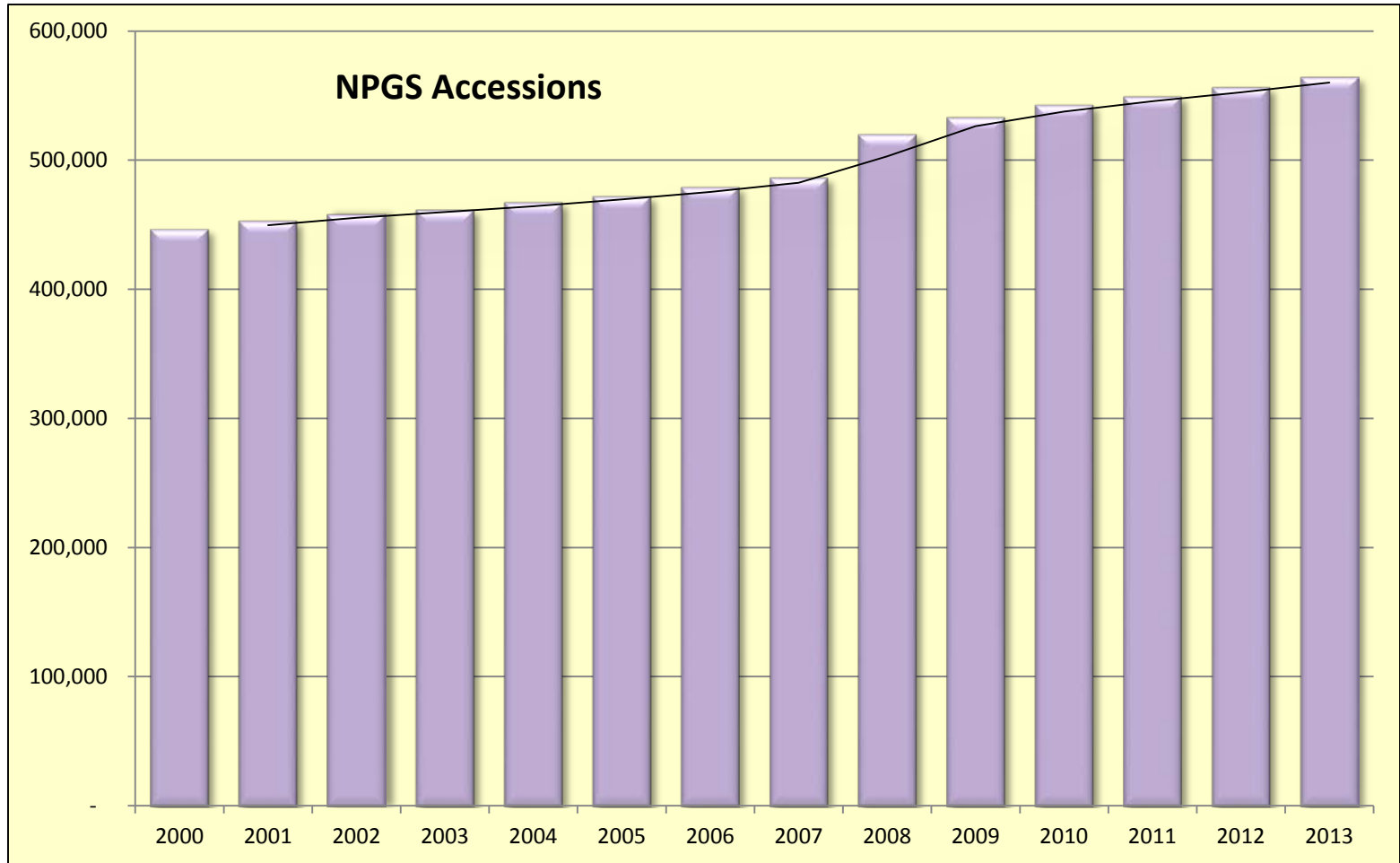
Peter Bretting

USDA/ARS Office of National Programs

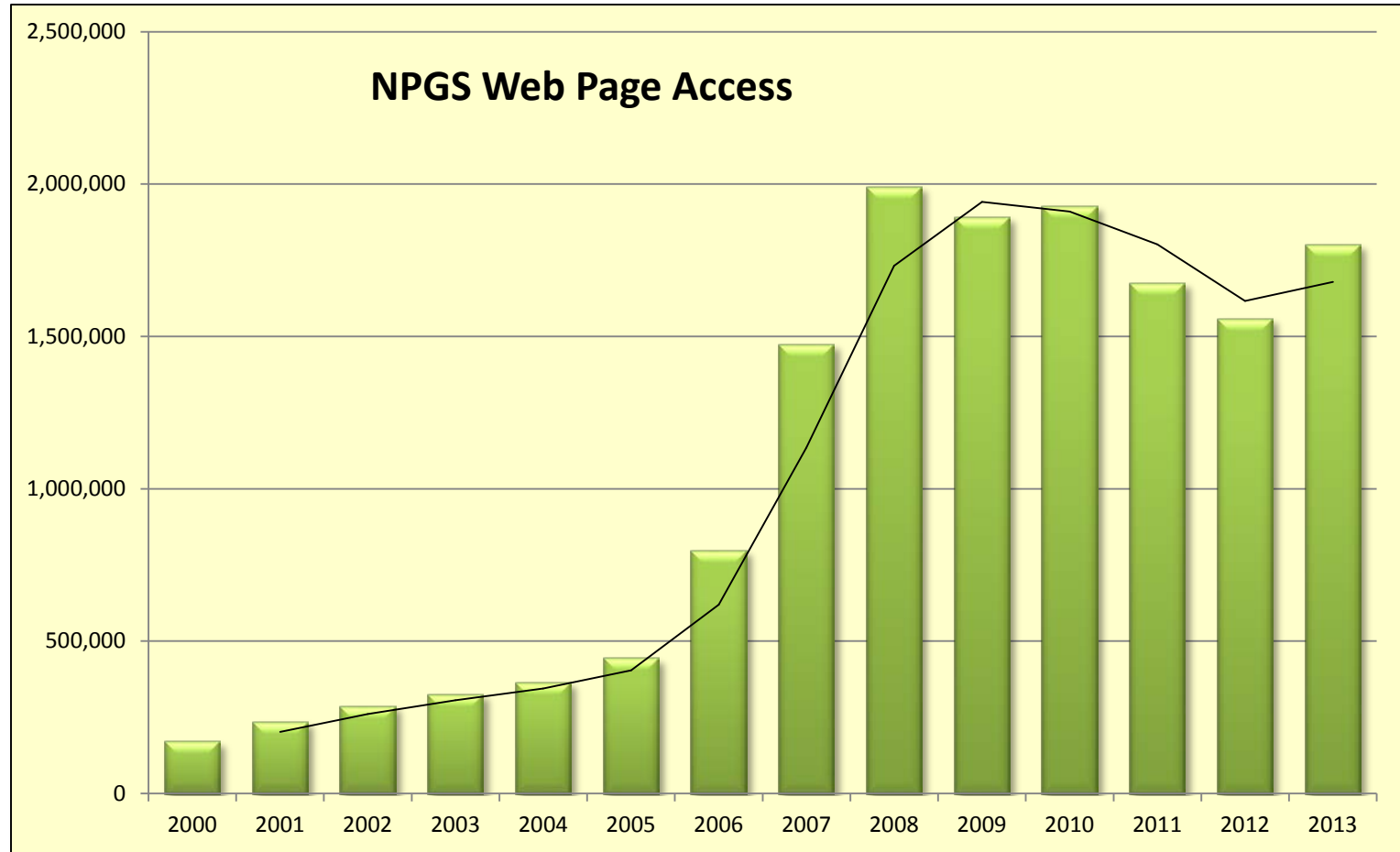
USDA National Plant Germplasm System (NPGS)



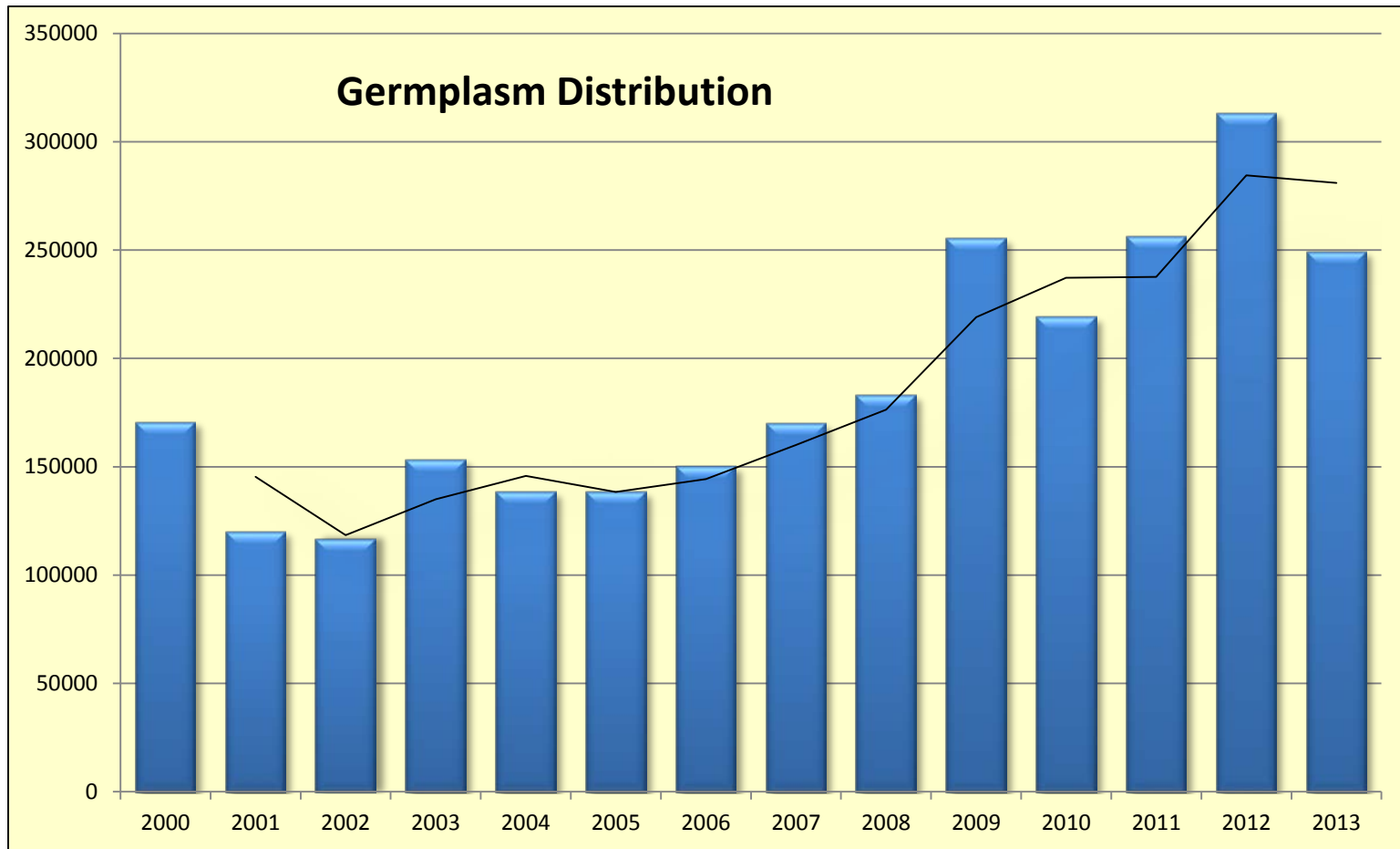
NUMBER OF NPGS ACCESSIONS 2000-2013



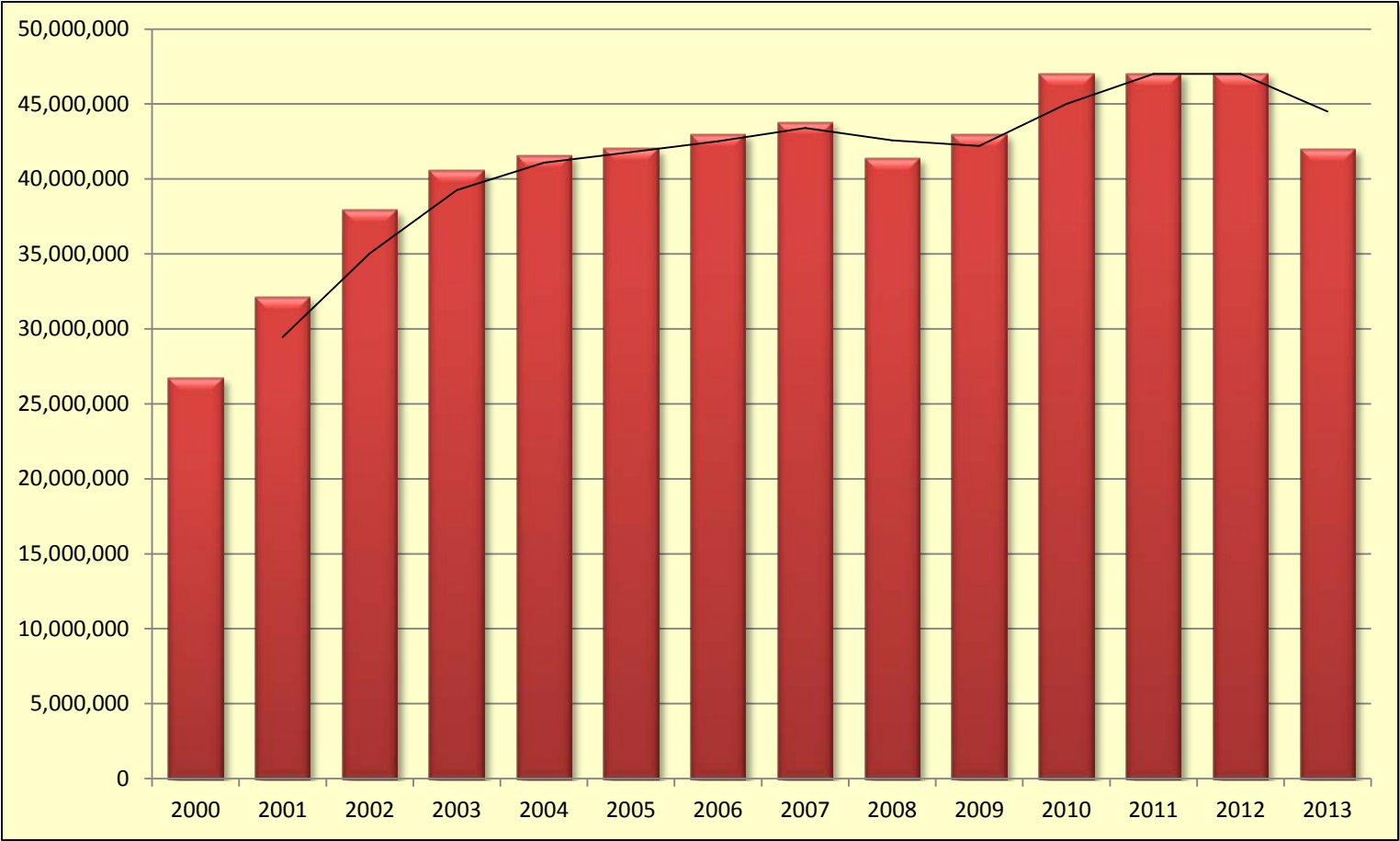
DEMAND FOR NPGS INFORMATION 2000-2013



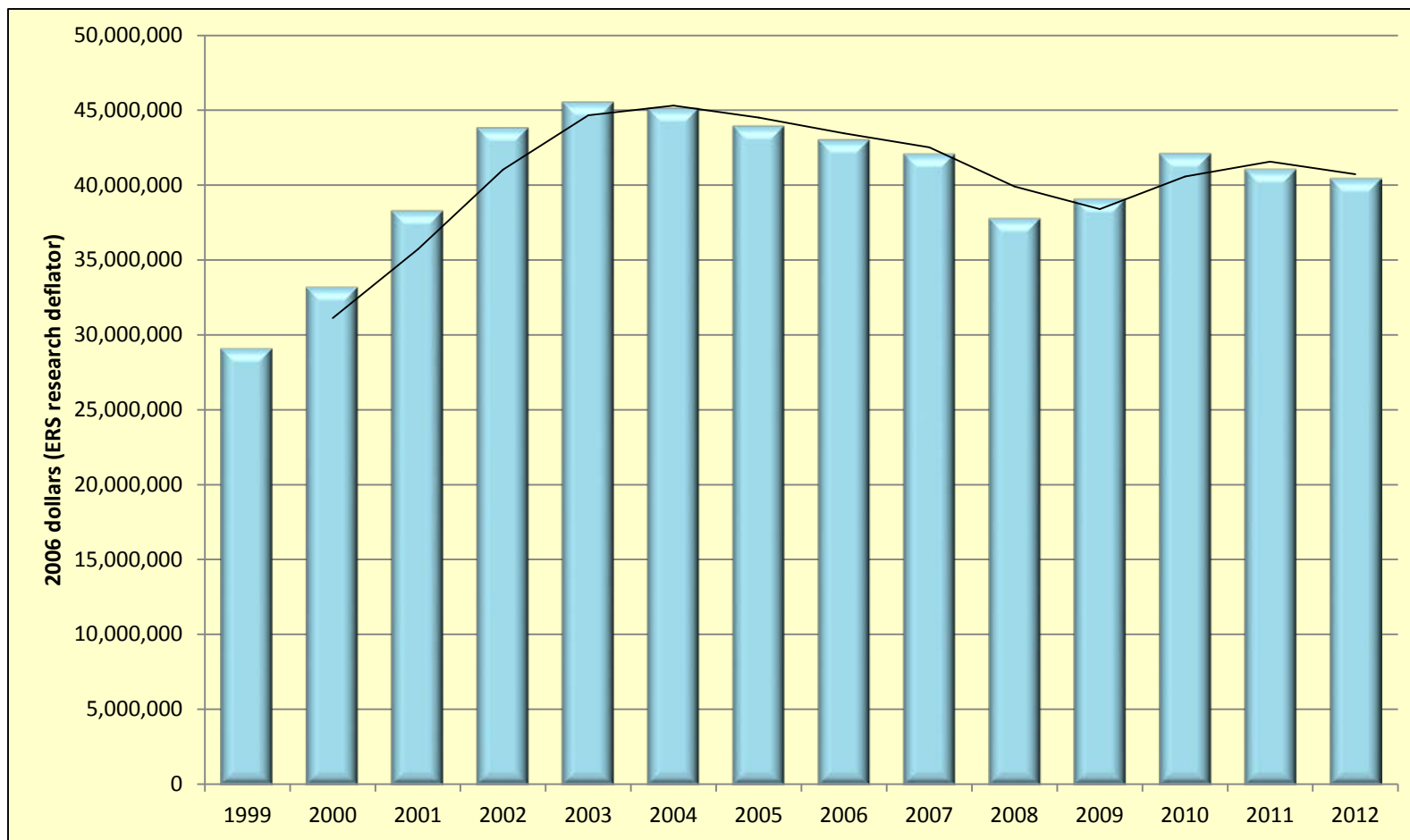
DEMAND FOR NPGS GERMPLASM 2000-2013



ARS NATIONAL PLANT GERMPLASM SYSTEM BUDGET 2000-2013



ARS National Plant Germplasm System Budget, Real, 1999-2012



Notable NPGS Developments

- **FY 2014 and FY 2015 budgets**
 - NPGS budget increased by \$2.6 million to \$44.6 million in FY 2014. FY 2015 budget is essentially the same.
- **FAO International Treaty on Plant Genetic Resources for Food and Agriculture**
 - Seed industry advocates US ratification.

Notable NPGS Developments

- **Stronger and more extensive international partnerships**
 - **Global Crop Diversity Trust: Developing international project for increasing the use of PGRFA (especially crop wild relatives), and global strategic plans for conserving numerous crops**
 - **PRC, S. Korea, Canada, Mexico, Colombia national genebanks: training at NPGS**

Notable NPGS Developments

- **NPGS staff changes**

- **Retirements or resignations: M. Welch (Pullman), D. Dierig (Ft. Collins), F. Zee (Hilo), E. Garvey (Beltsville), G. Romano (Parlier), W. Yan (Stuttgart), N. Barkley (Griffin).**
- **Position changes: S. Greene filled the vice-Ellis position at Ft. Collins, and T. Kisha filled the vice-Welch position at Pullman.**